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# What You Should Know About Vitiligo

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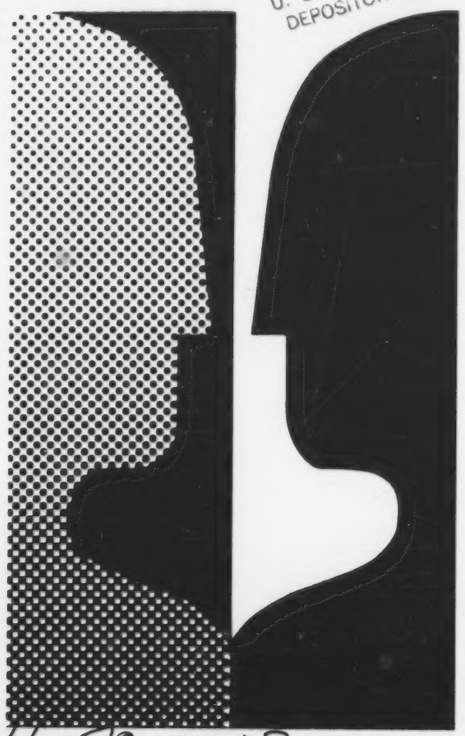

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Prepared by the
National Institute of Arthritis,
Metabolism, and Digestive Diseases

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***Although vitiligo patients are usually in good general health, the social handicap resulting from skin discoloration can be psychologically devastating.***

**What is Vitiligo?**

Vitiligo is a pigmentation disorder in which the destruction of color-producing cells (melanocytes) results in irregular, smooth white patches on the skin. These patches can occur anywhere on the body, most commonly appearing on the face, neck, wrists, backs of hands, and around body openings.

Although vitiligo patients are usually in good general health, the social handicap resulting from skin discoloration may be psychologically devastating. This is especially true for darker-skinned individuals whose natural pigmentation contrasts sharply with depigmented skin.

**Who Gets It?**

Vitiligo, which affects approximately 1 percent of the population, afflicts all ages, all races, and both sexes. About one-half of the people who develop vitiligo experience some loss of pigment before age 20. Furthermore, at least 50 percent of vitiligo patients have a family history of vitiligo, extensive premature graying of the hair, or other abnormalities of pigment.

Added to the emotional impact of the loss of skin color are some of the medical problems that can be associated with vitiligo:

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|---|---|
| *Hyperthyroidism and hypothyroidism* | overactive and underactive function of the thyroid gland |
| *Pernicious anemia* | vitamin $B_{12}$ deficiency |
| *Addison's disease* | diminished function of the adrenal gland |

*In some cases, illness and emotional stress can trigger more loss of pigment.*

**How Does Vitiligo Develop?**

Most vitiligo patients experience a rapid loss of pigment followed by an extended period in which the depigmented areas do not increase. Patients first notice white areas on exposed parts of the body, such as the face, neck, hands, and body folds. Lighter-skinned individuals may become aware of vitiligo during the summer months, when a tan accentuates the contrast between normal and depigmented skin. In some cases, illness and emotional stress can temporarily bring on more loss of pigment. Although pigment loss can be so extensive that the hair and eyes alone retain color, such cases are very uncommon. Physicians describe different forms of the disorder as follows:

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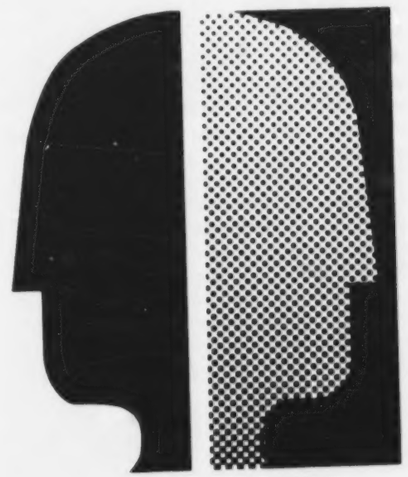
| *Total vitiligo* | extensive pigment loss with little or no pigment remaining |
| *Segmental vitiligo* | pigment loss in a region supplied by facial or other nerves |
| *Chemical vitiligo* | pigment loss of the hands after contact with menobenzene of hydroquinone |
| *Veloce vitiligo* | extensive pigment loss or graying of hair suddenly after emotional or physical trauma |

**What Causes Vitiligo?**

The cause of vitiligo is not known. One theory is that abnormally functioning nerve cells injure adjacent pigment cells. This theory applies to cases of generalized and segmental vitiligo.

Another theory is based on the fact that under some circumstances the body will destroy its own tissue (an autoimmune reaction). In this case the pigment within the cells is destroyed in response to a substance the body perceives as foreign. What triggers this response and why "defensive" cells release toxins that destroy cell pigment is not known. Other disorders frequently



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*Understanding immunologic involvement may be especially important in treating patients with melanomas, who have 10 to 20 times the normal incidence of vitiligo.*

associated with vitiligo and which may involve a similar reaction are thyroiditis, diabetes mellitus, and pernicious anemia.

Another theory under investigation is that pigment-producing cells are self-destructive (autocytotoxic). In the normal synthesis of pigment cells, the body produces byproducts that are highly toxic and which, in turn, destroy pigment cells. Exactly how this feedback mechanism differs in normal individuals and vitiligo patients is not understood.

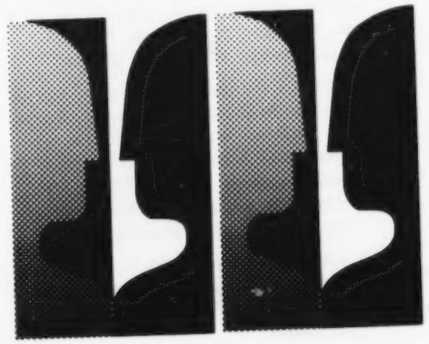
In some cases, such as in chemical vitiligo, the initial destruction of cells originates outside the body. Chemical vitiligo, occurring after exposure to some germicidal agents, is an example of how the destructive action of a chemical on pigment cells can be reinforced by the body's defense mechanism. In this type of pigment loss, the cells that have been destroyed by the chemical may release a substance that triggers production of antibodies. These antibodies attack the remaining healthy pigment cells, and further loss of pigment occurs.

Understanding this kind of immunologic involvement may be especially important in treating patients with melanomas (cancer of the pigment-producing cells), who have 10 to 20 times the normal incidence of vitiligo. Some melanoma patients seem to develop specific antibodies that make them more susceptible to substances such as those that trigger vitiligo.

**How is Vitiligo Treated?**

Repigmentation may occur spontaneously. If it does not, treatment with a drug called psoralen and ultraviolet light is begun. When activated by ultraviolet light, psoralens stimulate repigmentation by increasing the availability of color-producing cells at the skin's surface. Partial repigmentation is often successful with children and can be achieved in adults with varying success depending on factors such as duration of pigment loss, the area of the body affected, and the age of the patient.

Repigmentation is often a very long process which requires a great deal of patience and motivation on the part of both physician and patient. Psoralen and ultraviolet light therapy is not always effective—the repigmentation effort can involve as many as 150 treatments without total success. At best, 75 percent of all patients will respond favorably to this method of treatment.



***The National Institute of Arthritis, Metabolism, and Digestive Diseases has launched a major research initiative on vitiligo.***

For these, a maximum repigmentation of approximately 80 percent is possible. Total repigmentation is rare.

When the loss of pigment is extensive, bleaching out the remaining pigment can, at best, produce a uniform skin color. Many patients have been satisfied with the results of this procedure. The first choice of treatment, however, is to attempt repigmentation whenever possible.

**What is the Outlook?**

The National Institute of Arthritis, Metabolism, and Digestive Diseases (NIAMDD), a component of the National Institutes of Health, has launched a major research initiative on this disorder. In April 1979, NIAMDD awarded a $2 million grant to a consortium of institutions to study the psychological and social aspects of vitiligo, to investigate the mechanisms of the disease, and to continue research into improved treatment.

Because vitiligo occurs in many forms and is associated with other disorders, the NIAMDD research grant covers several areas of study:

- James J. Nordlund, M.D., and Aaron B. Lerner, M.D., at Yale University School of Medicine—coordinators for the project—have established a clinical center for vitiligo patients, and will study the relationship of vitiligo to autoimmunity and the treatment of melanomas.
- John A. Kenney, Jr., M.D., of Howard University Hospital, has established a clinical center for the diagnosis and treatment of vitiligo.
- Ann H. Beuf, Ph.D., of the University of Pennsylvania, and Judith Porter, Ph.D., of Bryn Mawr College, are studying the psychological and social aspects of vitiligo.
- Daniel M. Albert, M.D., of the Massachusetts Eye and Ear Infirmary, is studying related pigmentary changes in the eyes.
- Robert V. Smyth, Jr., Ph.D., of the University of Massachusetts, has discovered an animal model (the D.A.M. chicken) that loses color in its feathers and loses some vision. Scientific study of the sequence of biochemical events leading to pigment loss in such a model could lead to greater understanding of vitiligo.

**For Additional Information**

Persons wishing to contact a dermatologist for treatment of vitiligo can call their local county medical societies for referral.

Additional information about vitiligo is available from the following organizations:

Vitiligo Foundation
1006 Big Falls Avenue
Akron, Ohio 44310
Phone: (216) 928-8102

American Academy of Dermatology
820 Davis Street
Evanston, Illinois 60201
Phone: (312) 869-3954

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NATIONAL INSTITUTE OF ARTHRITIS, METABOLISM, & DIGESTIVE DISEASES

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